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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/756,771

01/14/2004

Kunikazu Kuchino

KUCH3002/EM

2338

23364 7590 09/10/2010

BACON & THOMAS, PLLC

625 SLATERS LANE

FOURTH FLOOR

ALEXANDRIA, VA 22314-1176

EXAMINER

KITOV, ZEEV V

ART UNIT

PAPER NUMBER

2836

MAIL DATE

DELIVERY MODE

09/10/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Allowability	Application No.	Applicant(s)	
	10/756,771	KUCHINO ET AL.	
	Examiner	Art Unit	
	ZEEV KITOV	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/04/2010.
2. ☒ The allowed claim(s) is/are 1 - 3, 11, 14 - 21, 23 - 28.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>06/22/2010</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Examiner acknowledges a submission of the arguments filed on August 4, 2010. Arguments have overcome rejections under 103(a).

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in Response to Restriction Requirement filed on May 23, 2008.

Please cancel following claims as being withdrawn: 4, 5, 7, 8, 12, 13, 21 and 29 – 36.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

An amended independent Claim 1 discloses a photoelectron generating plate comprising on a substrate a photoelectron emission layer for emitting photoelectrons by an illumination of a light and having a barrier property, wherein a thickness of the photoelectron emission layer is greater than a maximum surface roughness of an underlying layer thereof, and wherein the photoelectron emission layer is made of a

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ceramic material selected from the group consisting of titanium nitride, titanium carbide, zirconium nitride and zirconium carbide.

The closest references for the Claim are Fuji (US 6,159,421) and (US 6,774,561). Regarding Claim 1, Fuji discloses following: a photoelectron generating plate comprising a photoelectron emission layer (45 in Fig. 23) on a substrate (43 in Fig. 23) for emitting photoelectrons by an illumination of a light by a lamp (1 in Fig. 4) and inherently having a barrier property. It is well known in the art and supported by the evidence from on-line Encyclopedia Answers.com as follows: "When a metallic surface is exposed to electromagnetic radiation above a threshold frequency (which is specific to the surface of the material), the photons are absorbed and current is produced. No electrons are emitted for radiation with a frequency below that of the threshold because the electrons are unable to gain sufficient energy to overcome the electrostatic barrier presented by the termination of the crystalline surface (the material's work function). By the law of conservation of energy, the electron absorbs the energy of the photon and if sufficient, the electron can escape the material with a finite kinetic energy".

Fuji further discloses the photoelectron emission layer being made of a ceramic material such as titanium carbide (col. 19, lines 1 – 21).

However, Fuji does not disclose a thickness of the photoelectron layer being greater than a maximum surface roughness of the underlying layer. Hirano discloses a light emitting device having a light emitting layer (6c in Fig. 1D) having a thickness of 50 nm and positioned on the top of a hole transporting layer (6b in Fig. 1C) having a thickness of 20 nm. It is clear therefore, that since the light emitting layer has a

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thickness of about two and half times larger than the underlying layer, the light emitting layer itself is thicker than the maximum surface roughness or unevenness of the underlying layer.

However, the Hirano reference does not teach a photoelectric emission layer but rather teaches a light emitting layer which is different from photoelectric emission layer of Fujii. Accordingly, Hirano does not teach the relationship between the thickness of the light emitting layer and the maximum surface roughness of the underlying layer.

Another independent Claims 15 and 25 include the same discussed above limitation, which makes it also allowable. Allowability resides, at least in part, in the above-described limitations, which has not been disclosed in the Prior Art in a search.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance." Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose telephone number is (571) 272-2052. The examiner can normally be reached on 8:30 – 5:00. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor Jared Fureman, can be reached on (571)-272-2391. The fax phone number

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for organization where this application or proceedings is assigned is (571) 273-8300 for all communications.

/Z. K./

Examiner, Art Unit 2836

8/19/2010

/Stephen W Jackson/

Primary Examiner, Art Unit 2836